American
GAS JOURNAL
Formerly American Gas Light Journal
EST. 1859

VOL. 120. No. 12.
WHOLE NO. 2454.

NEW YORK, SATURDAY, MARCH 22, 1924

Subscription $3 per year
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Apparatus, Special, for Cleaning Producer Gas.

Apparatus, Special, for Gas Cleaning.

Apparatus, Special, for Production of Ammonium Sulphate (without Sulphuric Acid).

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Engineers and Founders

BALTIMORE NEW YORK

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ROOTS

Use Roots Rotary Positive Blowers and Save Half the Steam

The highest quality Turbo Blower requires 400 H. P. to deliver 40,000 cubic feet of air per minute at 1½ pounds pressure, according to their own printed literature. The Roots Rotary Positive Blower requires 300 H. P. to deliver the same volume of air at the same pressure. These figures are brake horsepower for the blower end.

Steam turbines in small units used for water gas blowers are steam eaters, especially when run non-condensing. Some units we have seen require as much as 80 pounds of steam per BHP/Hour. The Roots Rotary Positive Blower is driven from a reciprocating engine, which does not use more than 30 pounds of steam per BHP/Hr. when operating non-condensing.

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ROOTS

Rotary Foul Gas Exhausters

—

By Product Coke Plant Exhausters

—

Rotary Gas Boosters

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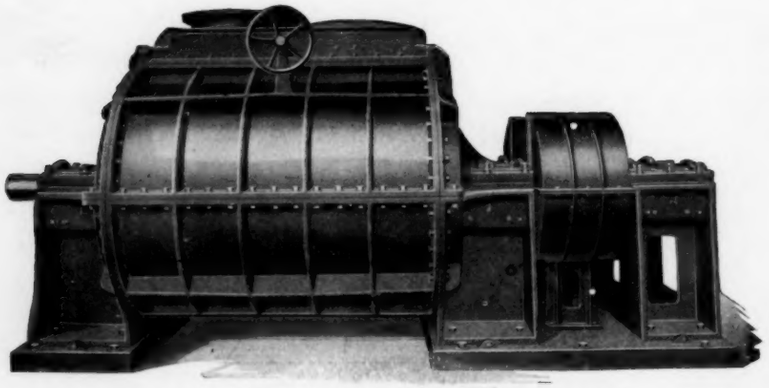
Rotary Pumps for Wash Oils, Tar and Gas Oil

—

Positive Displacement Gas Meters

—

Rotary Blowers and Gas Pumps for Industrial Gas Service



The illustration shows a Roots Rotary Positive Blower for 40,000 *Cubic Feet per minute at* 1½-2 *pounds pressure equipped with a Roots No-load Starting Relief Valve and Blast Gate.*

The P. H. & F. M. ROOTS CO.

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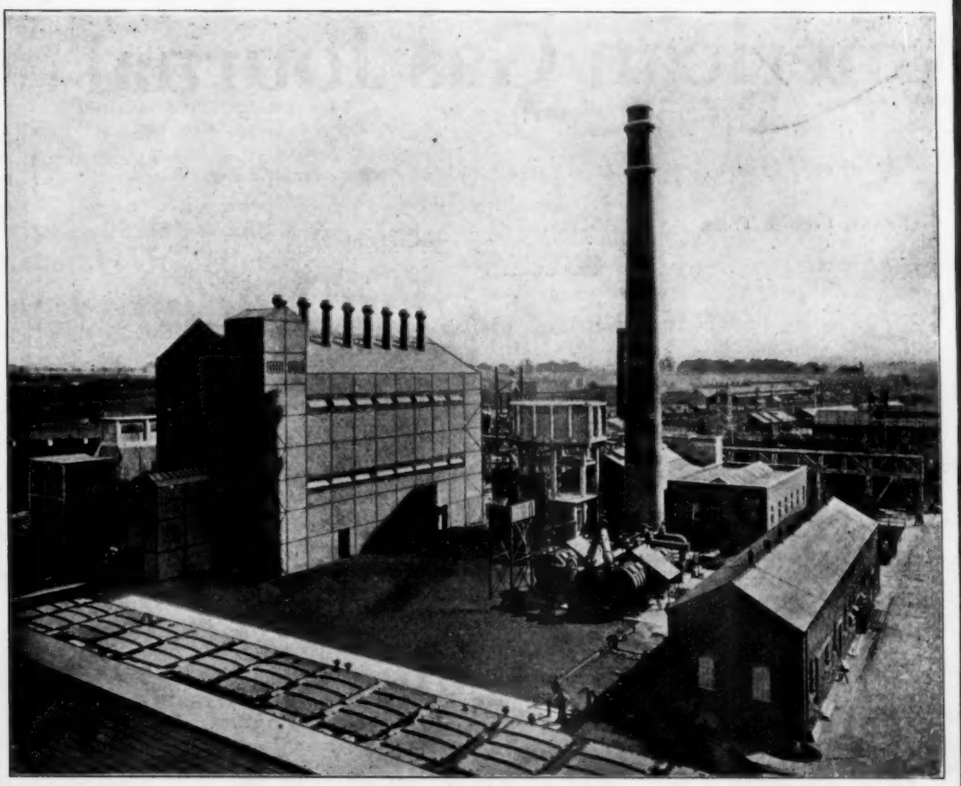

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150 NASSAU ST. NEW YORK

American Gas Journal

SIXTY-FIFTH YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. & Treas. C. S. MYERS, Vice-Pres. A. M. GLEASON, Sec'y.

STANTON G. KRAKE, Managing Editor

ISMAR GINSBERG, Technical Editor

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Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL, March 22, 1924. Vol. 120, No. 12.
Published weekly by American Gas Light Journal, Inc., New York, N. Y.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

AMERICAN
GAS JOURNAL

Vol. 120. No. 12 NEW YORK, MARCH 22, 1924 Whole No. 3454

Internal Corrosion of Gas Holders*

How it is caused and its significance in gas works operation

C. A. Schnerr

CORROSION of gas holders would seem to be rather a relatively small matter of interest to you men as gas engineers in the sense that many of you have probably never seen any alarming phase of such action. A bit of rust, but what of it?

What I have to say should not be taken in any alarmist fashion. The bit of rust should be counterbalanced by a bit of care and common sense, but corrosion, as a term covering the general question of oxidation or chemical deterioration of ferrous metals, is persistent, even though unobtrusive.

Corrosions of gas holders may well be divided into two primary classes:

External corrosion.

Internal corrosion.

External Corrosion

The external corrosions are illustrated by common oxidation and acid attacks from the air and rain, but this may be practically eliminated by good painting.

We have observed tops of certain holders, which were located near smoke stacks, and found cinders collected in offsets of plates, braces, etc., with ensuing acid corrosion evidenced under the accumulations. Holders should be carefully inspected for the presence of detrimentals such as cinders and every effort made to remove them. Certain local conditions tend to induce corrosions at points in contact with holder water, for example, at the holder cups. Acid conditions in the holder tank water may be caused by various agents; hydrogen sulphide from the gas, going into solution, sulphur dioxide from the gas forming sulphurous acid, sulphur acids washed from the air by rain, high concentrations of mineral salts or acids in water used to fill the tank; all these factors tend to cause cup corrosions and should be guarded against most carefully even to the extent of changing water supply or purifying the water, if necessary.

Galvanic action generally is blamed for many otherwise apparently unexplainable corrosion phenomena, but as a general proposition the external corrosion of holders is very perceptible and rather easily prevented. Consequently, I will devote the major part of our limited time to the sub-division of my subject, Internal Corrosion.

Internal Corrosion

By our observation, the principal factors causing internal corrosions of gas holders may be briefly summed up as: hydrogen sulphide, oxygen and cyanogen compounds with probably minor agents such as carbonic acid, sulphur oxides and highly saline waters used to fill the tanks.

A great many people believe that as long as the city gases can be forced into and out of holders, everything is well, but this thought should be ever with us, viz., a gas containing the primary agents of corrosion—as mentioned above—will have a detrimental effect on steel or iron containers, when moisture is present, to a greater or lesser degree, depending on time, concentration, shielding coatings, etc., and while the holder appears to be perfect in outward appearance, you can be certain that the corrosive agent has taken its share of iron and made that much metal useless.

During the war period, under the stress of purification overloads, inferior raw materials and necessarily less strict control, the prime impurities in manufactured gases became of greater importance than ever before. Sulphide stains were noted even to

*Presented at the annual meeting of the N. E. A. of Gas Engineers.

points of consumption. More oxygen passed through the purifiers, because in efforts to improve the purification, a larger amount was admitted to the boxes.

Such phase of the trouble was of major importance, because of its effect, and impressive, because so readily perceived, but internal corrosions caused at the same time were not so impressive because they were under the iron skin and not easily seen.

Corrosion in Holders Practically Nil Under Good Conditions

The corrosion in commercial holders, under good conditions, is practically nil, because hydrogen sulphide is absent, cyanogen is practically so and oxygen is at a minimum. Some little rusting takes place internally, it is true, but many holders have stood for fifty years under such conditions and inspection shows the metal to be good, even after such a lapse of time.

The general economic trend of the period towards lower heating value gases, in conjunction with the practice of scrubbing condensible vapors from the gas at the works, eliminates practically all of the oils formerly condensing in the holders and distributing system. Consequently, we are led to believe that corrosions will probably be somewhat increased because of the lack of the protective oil films.

Corrosion of Relief Holders

Relief holders exemplify the action of the acid constituents of gases acting as corrosives. Even though coated with tar and oils, they quite rapidly corrode internally and this is probably mostly due to hydrogen sulphide in water-gas manufacture, or to that gas and cyanogen compounds in coal gas manufacture. Relief holders are, as a general rule, rather small and of somewhat less importance than the commercial holders.

The writer received quite recently a communication relative to internal corrosion leading to ultimate failure of a large gas holder.

Cases of Holder Failures

The holder was of three million cubic feet capacity and contained about two million cubic feet of gas. A minor crown leak was noted and a man went on top to make the repair. While he was there, crown sheets ruptured over two-thirds of a circumference in a circle back some distance from the curb of the crown. The man was killed in the ensuing collapse and combustion.

This holder was twenty years old and a very careful examination indicated that the failure was due entirely to internal corrosion, caused by an occasional inflow of imperfectly purified gas when running over purifier capacity.

In another case brought to the writer's attention, examination of the interior of a relatively new holder, which had been in service one year, revealed the presence of apparently abnormal scale formation to an alarming extent.

Analysis of Scale Formation

Occasional introduction of poorly purified gas had been noted and it will probably be a matter of mutual agreement as to the direct cause of the corrosion when you have considered the following analysis of this scale:

Moisture	3.80%
Oils, resins, naphthalene, etc.	7.73
Ferri-ferro-cyanide—Prussian blue	4.28
Silica	2.02
Ferric oxide	68.41
Iron sulphide	13.53
Ammonia	0.00
Carbonates	0.00
Undetermined	.23
	100.00%

Hydrogen sulphide would seem to be the primary cause of the trouble in this case, aided and abetted by oxygen and cyanogen compounds.

In another instance of holder failure, the writer had an opportunity to personally investigate the matter and, as a matter of informative interest, certain descriptions and conclusions are given.

Corrosion of a Four Lift Pit Holder

This holder was a four lift pit holder with a working capacity of about four and one-quarter million cubic feet and was twenty-eight years old at the time of failure.

For twenty-three years this holder contained gas mixtures containing probably not over 50 grains of hydrogen sulphide per hundred cubic feet and for the last fifteen years of its life it contained some coke oven gas containing traces of cyanogen compounds in the mixture.

This holder failed through a tear across the crown for almost the full diameter, consequent rapid ignition and combustion of about four million cubic feet of gas and crashing of the lifts into the pit.

Failure Due to Internal Corrosion

A very careful examination of the holder indicated that failure was due to internal corrosion. Just how much of the crown rupture was due to the initial tear and how much resulted from pressures due to the gas in the fall or strains from the crash is very problematical.

The failure was due to two corrosive effects, as follows:

The corrosion and deposit of corrosion products on the under or gas side of two crown plates in the lap of the plates, tending to force the plates apart.

The selective corrosion on the under or gas side of the plates several inches from and paralleling the rivet line on both sides. This was indicated by very perceptible thinness of the metal at these points and it was along such a thinned metal area that the initial rupture apparently occurred.

(Continued on page 279)

The Service Charge—An Itemized Bill

What it means to the gas consumer

Carl D. Jackson

Formerly Chairman, Wisconsin Public Utilities Commission

WE ALL know that a merchant or manufacturer keeps accurate account of exactly what every item costs him that he sells or makes. In the case of a manufacturer, he must figure, in his operating expenses, a fair return on the investment which he uses in his business, the cost of his raw materials, his labor costs and many things. In that way only can he know the price which he must charge for every article he manufactures.

A merchant itemizes the costs that he is put to in buying and selling each article in his store. Among these costs are his rent, his taxes, his advertising, his clerk hire, bookkeeping, credit carrying, deliveries—it is a long list, with all the services that belong in every good business, but the store is successful or otherwise, according to how accurately the merchant calculates every item of cost. To the original wholesale cost of each article he adds enough to cover his selling costs and a return on the investment which is required in the business. That is the only way he can know what he must charge for everything he buys and sells.

Everybody knows that he does this, and that he must do it. All his costs are included in the final price to the purchaser. They represent the expenses which he is under in order that the purchaser may obtain his goods and the service that goes with them to sell his goods. It would be impossible for him to print on his price tags the exact number of these expenses and the exact amount of each for every article respectively, because a store handles so many hundreds, often thousands of different articles.

Gas Utility Deals in One Article

A public utility company, on the other hand, deals usually in only one article. It is a simple matter to keep a precise and accurate account of all expenses which a gas company, for example, is put to in order to make, or buy gas, and maintain a service for its distribution and sale. These expenses represent different things, one the commodity itself, and the other costs of service connected with the sale of the commodity and can be divided very easily into two classes.

Two Kinds of Expenses

The first consists of the expenses which enter into the cost of the gas itself, and from these costs the rates for the gas proper can be easily arrived at if it is known how much gas is sold, for the total amount sold determines what the total revenue is to be from the sale of that much gas.

The second class of expenses are those to which the customers themselves put a gas company in serving them, no matter how much or how little the gas company sells, or how much or how little gas any consumer buys. These are the same for every customer, in fact, regardless of the amount of gas he burns, or if he burns any gas.

The company can easily keep these expenses out of the price of gas, charging them on the basis of the same amount to each customer, for the amount actually is the same, and thus make the price of gas more equitable, because it can be based on the amount of gas which each consumer actually burns.

The Customer Charge

When this is done, it is called a customer charge, sometimes, or a readiness-to-serve charge, or sometimes it is called a service charge. Public rate bodies generally urge it as the most equitable arrangement among consumers and it has long been so considered, regardless of what name it goes by—it is the same charge.

Service Charge Removes Inequality of Costs

The unfairness of such a large increase in rates, especially to the average consumer, is quite plain, because people do not all burn the same amount of gas per month. A service charge, therefore, based on actual customer service expenses, which do not vary as among customers, and which are the same at all times, and which are calculated separately from the costs of the gas, does away with this inequality. It is a fair, just, businesslike arrangement.

The average consumer, without a service charge, or customer charge as it is sometimes called, is particularly hit by this inequality, because he is always the majority. On the other hand, the man who burns so little gas that very often he causes a loss to the company that carries him in service, constitutes a burden that the other consumers must carry. The "average consumer" is an interesting person, by the way, because he is the great bulk of a community, its hard-working, family-raising, common, average citizen. The very small consumer does not pay his way unless he pays the expenses which he causes a company to be put to in serving him, and this he can do fairly, equitably, accurately, honestly, if his service

expenses are calculated apart from the cost of his gas.

All Customers Should Fare Alike

There should be no inclination in a community to favor certain consumers at the expense of others, in this entirely needless way, and it is coming to be regarded as a good wholesome American principle, for everybody to pay his own way, imposing neither on company nor individuals.

Bear in mind, now, that these expenses are the same for every customer, that, where a service charge is in effect, they are not included in the gas rates, and that where a service charge is not in effect, they have to be added to the price of gas.

Some Expenses Incurred in Service

What are these expenses that have nothing to do with the quantity of gas sold in a community or to an individual consumer? Principally the following:

Reading every customer's meter each month.

Keeping his accounts.

Making out his bills, mailing them, postage.

Keeping his meter in repair, painted, inspected, etc., as required.

Depreciation of company property located on the premises of the consumer.

Service and inspection furnished a customer, as required or requested for the customer's own pipes, appliances, etc.

Inspections made regularly to safeguard the service of all consumers alike.

Educational work to improve the results which customers get with gas and improve his particular service.

These and many more are very definite expenses, and their total is made the basis of the customer service charge.

We have seen why public rate bodies have long favored this equitable arrangement between gas consumers who are the majority, the average families, and the others, an arrangement exactly equitable between all classes of consumers, because it makes every consumer pay for exactly what he gets, and no more. The reason why a utility company looks favorably on it is the simple business reason that it makes generally for satisfaction among its customers and is a sound business arrangement all round.

Service Charge Puts All Customers on Equal Basis

The whole theory and principle of a service charge is, therefore, to take care of certain customer expenses, which are the same for every customer, which must be met somehow, and, which, if not met by a service charge, must be added to the rates for gas by a considerable increase to them. That this would be inequitable, as among consumers who burn different amounts of gas, is quite clear, because the increase per thousand feet would affect their bills by different amounts, according to the amount of gas which each burns. Some consumers, therefore, would be paying each month more than their share of customer service expenses, and others less, although the amount that each really owed would be the same.

CATALYTIC PURIFICATION OF GAS

British Patent No. 207,995 relates to the purification of a gas by means of catalytic substances, and has for its object to provide means whereby such process can be carried out more efficiently and economically than heretofore. In a process for the production of catalysts, wherein a metal is used as a support for the catalyst, it has been proposed to employ metal wire, strip, sheet or cloth, the surface of the same being converted into an organic salt, the catalyst so produced being applicable for use in treating liquid products, gaseous products, or products in the state of vapor.

This invention comprises a method of and apparatus for purifying gas by catalytic processes, wherein the gas is passed over a catalyst arranged as a thin film or layer on the surfaces of thin material consisting of portions closely assembled and supported to form a bed or layer with their surfaces out of contact so as to insure a free passage of the gas through the bed or layer. The film carrying material is made in pieces supported in such a manner as to prevent the closing together of adjacent film covered surfaces, so that there will be no consolidation of portions of the material, producing back pressure in the gas, as when granular or powdered material is used; thereby enabling the use of a bed of much greater depth than when granular or powdered material is used. The film catalyst supporting material may consist of narrow strips of thin material coated on each side with the catalyst and distorted so as to prevent surface contact when assembled to form a bed or layer.

The catalytic or contact material may be any suitable oxide, such as iron oxide or catalytic metal such as platinum, and this material may be arranged as a film or coating on spirals or scrolls formed of thin narrow strips of material, or of thin wire spirally wound to form an open work structure.

The invention is particularly applicable to catalytic processes for the removal of sulphuretted hydrogen from coal gas, and the recovery of sulphur from such process. In one method of carrying out the process the catalyst supporting material is made of thin strip iron spirals or scrolls arranged to form a bed through which gas can be passed, and these spirals are first coated with a film of rust or oxide by submitting them to the action of moist air or steam and air. This treatment is carried out when the material is supported in position to form a bed, the preheated gas being afterwards passed through the bed so treated, and the issuing gases cooled or otherwise treated to collect the sulphur in any suitable manner.

GAS MERCHANDISING

Domestic – Industrial

Constructive Gas Merchandising

How the appliance salesman can develop new business by attacking fundamental deficiencies

C. E. Shaffner

FROM a survey of industrial and social conditions in a number of cities, it is increasingly evident that there never before existed such a close interrelation of tendencies making for the more widespread use of gas as well as the more extensive sale of gas appliances.

This is by no means the kind of truism that the professional optimist is apt to release upon the least encouragement, but instead represents a direct outgrowth of unmistakable evidences pointing out decided possibilities for effective gas merchandising, surface indications to a considerable extent, together with other developments not ordinarily regarded as affecting the industry.

A short time ago in a middle western city there was considerable agitation for more rigid inspection of restaurants and eating places because of the discovery that unsanitary conditions existed, particularly in rooms devoted to the preparation and cooking of food. All of this agitation resulted directly from an exposé by health inspectors of a similar set of conditions at the annual state fair which was held on the outskirts of the same city, and in turn brought counter charges from the fair officials, who admitted that while the situation in temporarily constructed eating places on the grounds was not entirely satisfactory, it nevertheless was no worse than in a number of restaurants throughout the metropolitan district. In the majority of such instances the undesirable state of affairs was entirely due to lack of the proper facilities, not only for cooking, but for heating water used in scrubbing and cleaning and for the prompt disposal of refuse and garbage.

An Opportunity for the Dealer in Gas Appliances

Here obviously was revealed a gold mine for the dealer in gas appliances. In spite of the fact that the restaurant field is worked vigorously, it is nevertheless true that there is too much of a tendency to follow the lines of least resistance, with the result that eating places are usually splendidly equipped in the front with a view of scoring an impression on patrons. But on the other side of the partition, where the chef holds sway, there is quite often a different story to tell because of inadequate gas equipment. This in many cases is due to the fact that the proprietor is too anxious to conserve the precious space in his high rent location or perhaps to the additional reason that he has figured it is more economical to save as much as possible in purchasing the kind of equipment which is never seen by his customers, even though it does impose attendant inconvenience and hardship upon his employees and quite often slows up service or very decidedly affects the quality of cooking, without mentioning the further thought of contributing to a state of unsanitation.

An Opportunity for Constructive Salesmanship

It seems to the writer that there is a big opportunity for constructive salesmanship in this class of prospects by correctly outlining their requirements from the standpoint of what they believe they need. In this connection it is quite apparent that insistence of this kind at the outset would save the restaurant man from the possibility of adverse criticism later on or the odium resulting from newspaper publicity of unsanitary eating places which, whether rightfully or not, usually reflect on a wholesale basis upon every establishment serving food to the public.

Along the same line, at least in so far as food is concerned, there is an excellent chance for timely and successful gas merchandising through co-operation with the local "Make Toast Your Breakfast Food" campaigns which are being conducted on an extensive scale during the present year under the auspices of the American Institute of Baking. In spite of the

widespread sale of other appliances for making toast it is a fact generally admitted by a great many housewives that the gas oven cannot be beaten for this purpose and repeatedly substantiated by the golden brown slices of toast done to a turn and unsinged that adorn their breakfast tables every morning, although these same people possess this other equipment for making toast.

Improvement in Housing Conditions and Gas Appliance Sales

There are even greater possibilities for promoting the sale of gas and gas appliances in connection with better building and improvement of housing conditions. Now that furnished and light housekeeping apartments have come into extensive use, particularly in cities, in an endeavor to take care of populations that have increased beyond housing accommodations, there is a seeming neglect on the part of many landlords to provide adequate gas appliances both from the standpoint of economy in expenditure and conservation of space in small kitchens and bath rooms. Nevertheless, even a preliminary investigation shows beyond any doubt that unless this situation is cleared up, the value of this kind of property will very rapidly decrease, for one reason, because the tenants are not provided with sufficient means to prepare the actual necessities of life. This same condition obtains also, but to less extent, in unfurnished apartments, particularly of the small type, and must result in deterioration on account of the fact that without a good gas range or hot water heater a living place cannot be maintained in a satisfactory state.

Another Opportunity for Constructive Salesmanship

Here is a remarkable opportunity to show the landlord, the builder and the contractor the error of their ways—not an easy task by ordinary means—but one that is being accomplished in a constructive way in other lines of business. For example, retail lumber dealers in several cities have experienced little or no difficulty in persuading contractors and builders to use rust-proof nails in attaching shingles for roofing and to prevent loosening, thereby automatically setting up an undesirable fire hazard. This same argument applies to the use of inadequate gas appliances in apartments and dwelling houses, as well as for a number of other purposes, equally constructive and vitally affecting public health and welfare and property protection.

These and other similar conditions are undoubtedly indicative of the kind of gas merchandising which is coming into its own to a far greater extent in 1924 than ever before. For one thing, it is the obvious outgrowth of the tremendous building schedule which is being undertaken in practically every city in the country and which is virtually a reflection of an industrial growth, sometimes characterized as abnormal.

And its implications are so extensive as to require a little more thorough study in developing the constructive factors which will make for more and better sales.

Ideas of Interest to Those Who Sell

William H. Matlack

Sending Out Direct Advertising

A western commercial manager recently arranged with the "route men" of a morning newspaper to fold in some of his direct advertising with the newspaper. This is a new method of getting on the job early and surely it is an inexpensive way, the only comment to be made on the method being, How much waste was there in circulation?

Give Them New Title

Down in Dixie there is a gas company who classes all complaint men as service men, and, as such, it is their duty to investigate all gas burning appliances in every home and industry visited, to look around for new uses for gas and to make a written report with suggestions to the manager of the new business department. The company paid $1 for each "tip" gained in this manner that leads to a sale within a period of thirty days. The new business manager says: "Hold something out to all employees, make extra effort worth their while and they will make extra efforts that will be profitable to the company."

Goes 'Em One Better

A house furnishing dealer in one of the western states recently displayed a radiant type heater in front of his store "going and glowing full blast," which is no new stunt—but he had gone many of 'em one better, for he had a boy stationed near the heater who handed to everyone who seemed interested a folder giving the prices of the various types of heaters sold by the dealer. The folder made it known that any heater would be delivered same day as ordered with an initial payment of but one dollar.

Department Store Used Fans

A novel advertising idea that came to our attention last summer was that of a big department store. This store gave away a folding fan to each patron of its dining room. The only advertising on the fan was printed on the first fold and said: "A Cool Spot on a

(Continued on page 278)

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT YOU CAN DO IT BETTER WITH GAS

Lesson No. 12

Measurement of High Temperatures (continued)

Thermo-Electrical Pyrometers

It has already been described how under certain conditions heat can produce electrical effects. These effects may be used in determining the temperature of the hot body. The thermo-couple or thermo-electrical pyrometer was first used in practical work by the famous French scientist, Le Chatelier. It is a very important instrument for determining high temperatures. At first the couple, which is always made from two dissimilar metals, was very costly, as rare metals, such as platinum, rhodium, etc., had to be used in making it. But recently the common metals, such as iron and copper, iron and nickel alloys, have been employed for this purpose, which had a very marked effect on the development and application of this temperature-measuring instrument in industrial work. The use of the common metals means, of course, that the couple cannot be used at such high temperatures as when a rare metal couple is employed.

How the Couple Is Used

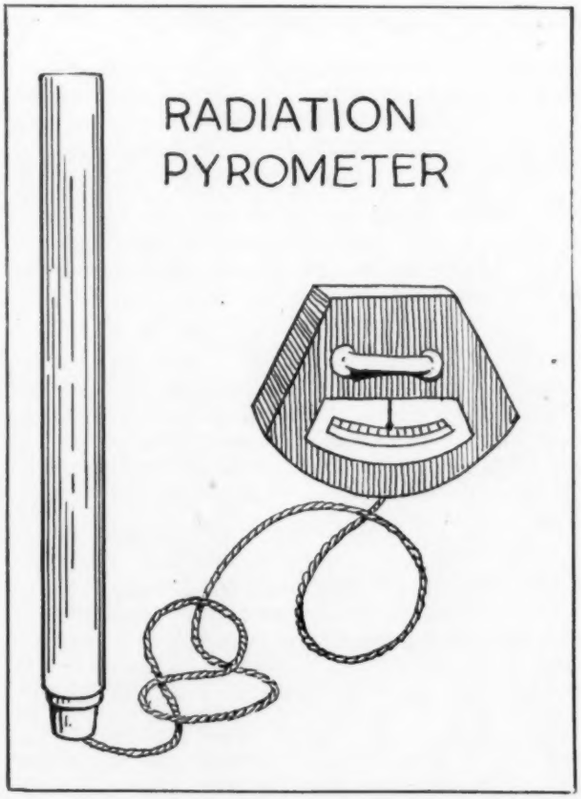
One end of the couple is inserted in the fire or the furnace. The couple is joined together at this end and the other end, outside of the fire—the cool end—is connected by separate wires to an electric circuit which contains an instrument which reads off the current, that the temperature differences between the hot and cold ends of the couple induce to flow in the circuit. The readings are in terms of temperature. Tubes, made of different refractory subtsances, are generally employed to protect the end of the couple that is placed in the fire, so that the metal is not subjected to oxidation and ultimate destruction. The details of the construction and use of thermo-couples are rather involved and cannot be discussed here. The reader is referred to Brislee's Introduction to the Study of Fuel and Le Chatelier and Boudouard's High Temperature Measurement for further information on this subject.

Resistance Pyrometers

Another form of electrical temperature measuring instrument is known as the resistance pyrometer. This pyrometer is of the recording type, keeping a running record of the temperature. The temperature is measured by the change in the resistance of a wire in the electrical circuit which is brought about by temperature rise. The instrument works on the principle of the Wheatstone bridge.

Radiation and Optical Pyrometers

It is sometimes necessary to measure temperatures which are in excess of 3,000 degrees F. In such cases it is dangerous to use the thermo-electric couple for the reason that the high temperature may injure the couple and produce inaccurate results in the recording meter. Hence for these temperatures the radiation pyrometer is commonly employed. There are a number of varieties of this form of pyrometer and all are suitable for measuring the highest obtainable temperatures.



In this form of pyrometer no part of the instrument is inserted in the hot body, but the radiant heat

from the latter is caused to fall on a mirror and is thus brought to a focus at a point where there is placed one end of a thermo-electric couple. The temperature of the latter is raised in this way and the hotter the furnace the greater the increase in temperature and the greater the current which flows through th electric circuit and is recorded in the meter. There is, of course, some loss of heat as the radiations pass through the atmosphere, but this is of no consequence, as it has been proven that the temperature of a molten mass of steel in an open hearth furnace, in which field the radiation pyrometer finds considerable application, is the same whether the instrument is placed three feet or sixty feet away from the furnace. One very important advantage of this form of pyrometer is that it lasts indefinitely, as it does not come in contact with the intense heat of the furnace as do other forms of pyrometers.

Making Prepared Roofing

An interesting industrial use of gas

William Reach, Jr.

The use of gas for making prepared roofing is carried out in a plant in Chicago where no effort or expense has been spared in seeking new improvements and putting them into effect. This company lays the roofing and guarantees it. They have full control of their product from the time it is impregnated until the guarantee has reached its termination. To those who are familiar with this business it will be at once realized what a tremendous proposition this policy embraces. In order to guarantee their product they must be certain of its quality and workmanship. And, like the house that Jack built, in order to be certain of quality and workmanship, they must be just as sure of the fuel required as they must be of the materials used.

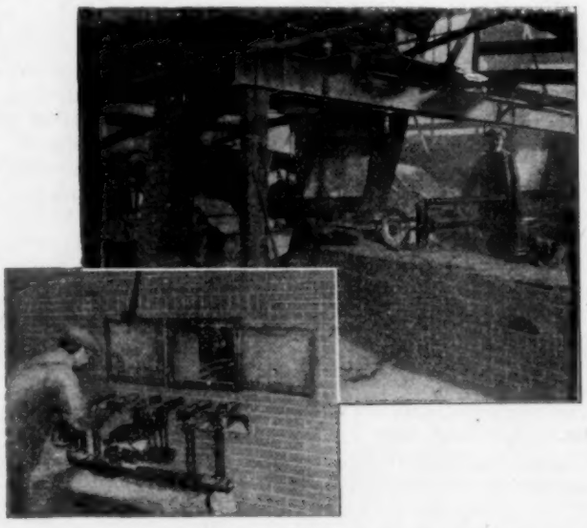
Why Gas Is Ideal.

The making of prepared-roofing is not an extremely complicated endeavor. Nevertheless, in order to insure consistent quality production, the process is unusually exacting. One of the prime factors in making a quality product is absolute temperature control. This means, in the case of the manufacture of prepared roofing, that the asphaltum in the saturating tanks must be kept at the proper temperature and kept at that point indefinitely. Variations in temperature cause disastrous variations in the quality and quantity of the asphaltum impregnated in the felt paper. Wherever Industrial Gas is used temperatures may be regulated merely by partially or entirely opening or closing a single valve through which the gas flows. This gas valve is actuated by a thermostat immersed in the asphaltum tank. Roughly, this thermostat is a bar of some bronze material that expands or contracts as the temperature varies. By means of a series of multiplying levers it opens or closes the valve supplying the gas to the burners underneath the tank. Obviously, there is no fuel as easily controlled as industrial gas.

The Process

In the making of prepared roofing the steps are as follows:

1. A 750-pound roll of dry felt paper to revolve, is held on a shaft about ten feet above the saturating tank. The felt is wound onto a spool immersed in the saturating tank. The asphaltum in this tank is kept at a temperature of 400 deg. F. by means of gas burners placed directly underneath. The asphaltum



is replenished as needed through a trough from the adjacent preheating tanks. The asphaltum thoroughly impregnates every portion of the dry felt.

2. The roll of saturated felt is now unwound and passed between two gauging rolls, which are set at the proper distance apart and determine the maxi-

(Continued on page 277)

*Reprinted from Peoples Gas Club News.

As The Journal Views It

THE CATECHISM

The American Gas Association has undertaken the revision of the Catechism, that standard book of American gas practice for the past fifteen years, which is appearing each week in the American Gas Journal.

The Catechism is a book which contains the fundamental principles and laws of gas technology. It is something that every gas man, gas superintendent, student and engineer can use to the greatest advantage, for in it there are given the basic details of gas practice and gas engineering that are followed out today in much the same way as they were when the book was first published. The revised book will of course contain additional matter, but it can only act as a corollary to the original book which is being reprinted in the American Gas Journal.

In reprinting the Catechism, the American Gas Journal was aware of the fact that a new edition would be published in time by the American Gas Association, but believed that a distinct want was felt among gas men, particularly among the younger gas men who have been in the industry for a short time only, for the old book, and the only way in which to get this book to them was to republish it in serial form. It also felt that after the new book was published the fact that gas men had been able to obtain copies of the old book, through the columns of the American Gas Journal, would make the revised edition so much more valuable to them.

Furthermore, inasmuch as the new "Catechism" will appear in text-book form, it will no longer be a catechism, a series of questions and answers. To many, especially the younger gas men, the question and answer form is far more attractive than the standard style used in text-books. It gives a more personal touch to the information that is presented. For it often gives the exact answers to identical questions that come before the gas man in his daily work.

When the new "Catechism" appears, it will be welcome, but in the meantime the old, well known, thoroughly reliable and absolutely accurate old Catechism in the familiar question and answer form will remain the standard of hand-books for American gas men.

THE SOFT COAL SITUATION

The gas industry, along with the rest of the manufacturing industries of the country, has been gratified to learn that at last common sense has prevailed in both camps of the soft coal industry, and that both the mine workers and the coal operators have decided to renew their working agreement for a period of three years.

It is especially noteworthy that this is the longest contract in the soft coal industry for over a quarter of a century, the contracts having run for a year or two at the most. Furthermore, they have always been manipulated so that they would terminate in a year when a political change was to take place in Washington. The present contract will terminate in what might be called an off-year, when there will be neither a congressional nor a presidential election.

This is a decided advance along the principle of collective bargaining. It was really more than the most sanguine could have expected. Perhaps one of the conditions which influenced the making of this contract was the fact that there was an enormous supply of soft coal on hand at the time, a supply as large as 65,000,000 tons, as has been estimated by various authorities.

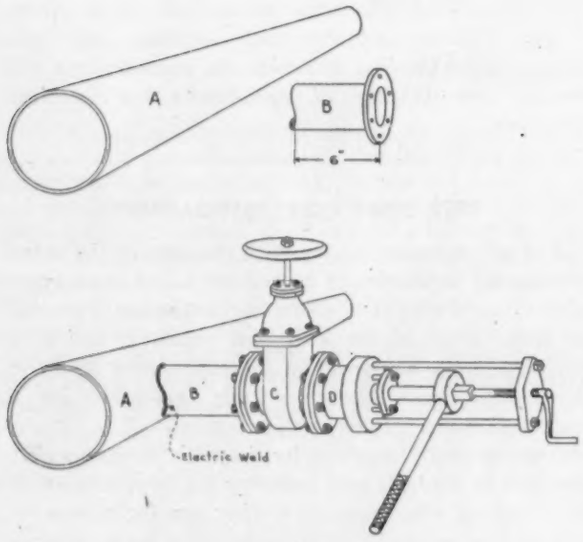
Then again, the fact that the public has become tired of being made to witness coal warfare, and eventually having to foot the bills after the fight was over, has also had a deterrent effect on the operators and miners, and has convinced them of the wisdom of settling their disputes in an amicable manner and preparing to give the public that service which it is their duty to give.

GAS WRINKLES

Tapping Large Gas Mains Under Heavy Pressure

M. R. Thompson

TAPPING LARGE GAS MAINS UNDER HEAVY PRESSURE.



A — Main.
B — Nipple and Flange
C — Flanged Gate Valve
D — Tapping Machine

It is frequently necessary to tap a large size, high pressure, steel gas main, for a large branch line without interrupting service, and saddles are not satisfactory where the branch line is as large as the main line, or nearly so, particularly on mains 12 in. in diameter or over, where the wall of the pipe is comparatively thin.

Taps of any size can be made without reducing the gas pressure in the main and without danger to the workmen in the following manner:

A nipple "B," with a flange at one end, is cut to fit the side of the main "A" and is placed in the desired position and welded to the main by the electric welding process. Do not attempt to use the oxy-acetylene process as the wall of the main must be melted with this method in order to make a good weld and the gas pressure in the main would blow a hole through the molten metal. With the electric arc the wall of the pipe is not melted through and welds have been successfully made with a pressure of 300 lbs. in the main.

After the nipple has been welded in place a blind flange is bolted on and the weld tested for leaks with air pressure. When all is tight the blind flange is removed and the gate valve "C" is bolted to the flange on the nipple and the tapping machine, "D," bolted to the valve. The tapping machine, operating through the open gate valve and the nipple, cuts a hole in the wall of the pipe.

The cutting tool of the tapping machine is then withdrawn far enough to allow the gate valve to be closed.

The tapping machine is then unbolted and removed and the tap is complete.

Many 6 in., 8 in. and 10 in. taps have been made by this method in 12 in. mains carrying 300 lbs. gas pressure.

It must also be remembered that the talk that has been going on in certain circles, political and otherwise, as to the desirability of cleaning out the soft coal industry through the institution of government control, may also have had a salutory effect upon the negotiations of the miners and the operators. Economically, this is one move which the soft coal industry should always be ready to combat and to prevent its being made every effort should be exerted.

That the miners and operators have been able to settle all their disputes, and actually arrange to undertake a working arrangement for a period of three years, will have the effect of retarding the entrance of the government into the gas industry, if not avoiding it altogether.

As for the gas industry, of course, the result is of decided interest, and most all gas men will feel that as far as they are concerned this is the best thing that could have happened. It removes the bug-a-bear which has pursued the gas industry for some time in the past, and there need be no fear now that strikes in the soft coal industry will interfere with the proper conduction of the gas business for some time to come.

Catechism of Central Station Gas Engineering in the United States

Installment No. 12

(Continued from last week)

The small pieces of nearly uniform size possess the further advantage of making it possible to have the weight of the charge uniform throughout the whole length of the retort. This uniformity cannot be secured when large lumps and fine coal are used together, or when only large lumps of irregular shape are used. The custom that obtains in some gas works of charging the top retorts of a bench by throwing into them the lumps that are too large to be handled in the charging scoop should be condemned for these reasons, and care should be taken to have all the lumps reduced to pieces of the size specified above.

According to some experiments made by a French gas engineer, not only is a larger yield per pound obtained when the coal is in lumps of this size, but the gas is also of slightly better quality than when smaller lumps are used. In making these experiments lumps of the size being experimented with were used in each case, without any admixture of dust, and the smaller lumps were made by breaking larger ones, so that the coal was exactly the same in every respect except that of size.

Volume of Coal Charge and of Retort in Relation to Quality of Gas

54. In making coal gas what influence has the relation between the volume of the charge of coal and the volume of the retort upon the quality of the gas produced from the coal?

Ans. The relation between the volume of the charge of coal and the volume of the retort, or as it is sometimes expressed, the relation between the area of the cross section of the charge and that of the cross section of the retort, has a very decided influence upon the quality of the gas produced and also upon the amount of trouble experienced from stoppages in the stand-pipes and thickening of the tar in the hydraulic main. The quality of the gas is at its best, other things being equal, and the least trouble is experienced, when the volume of the charge is such as to almost completely fill the retort.

Reasons for Same

The reason for this can readily be seen when the effects produced upon the coal and gas by the exposure to heat to which they are subjected are considered. When the charge is first put into the retort, the temperature of the coal, and of the portion of the surface of the retort covered by the coal, is low and the products of distillation are hydrocarbons of high boiling points, that exist as vapors at the temperature in the retort, but condenses to liquids when cooled to atmospheric temperatures. As the charge becomes heated, however, hydrocarbons of lower boiling points are given off which will remain in the state of gas or vapor at atmospheric temperatures. The interior surface of the retort has by this time again reached its original high temperature, and as the hydrocarbons evolved from the coal pass, on their way to the stand-pipe, through the space left above the charge, they are exposed both to contact with this hot surface and to the heat radiated from it. The effect of this exposure is to break up the more complex hydrocarbons and form hydrogen, simpler hydrocarbons, and free carbon, and, given a temperature sufficiently high and an exposure of sufficient length, the final result would be the formation of a gas consisting of hydrogen and marsh gas with no higher hydrocarbons, and the setting free of a large amount of carbon. Such a gas would be non-luminous, so that, although a certain amount of this breaking up of the higher hydrocarbons after they are evolved from the coal is required to produce a permanent gas, especially at the beginning of the distillation, it is important that the operation should not be carried too far.

Importance of Velocity of Gas Travel

The length of time during which the gas will be exposed to this heat depends upon the velocity with which it travels, and this velocity in turn depends upon the area of the part of the cross section of the retort that is not taken up by the charge and upon the rate at which gas is being made. An increase in the volume of the charge for a given size of retort will therefore increase the velocity with which the gas passes to the stand-pipes, first, by reducing the area of the space through which it passes, and, second, by increasing the rate at which the gas is made, the combined result being that the gas remains exposed to the action of the heated surface of the retort for a much shorter time and is therefore much less affected by this exposure.

It is true that, although the gas is less exposed to radiant heat when the space is small and the velocity great, a larger percentage of it is brought into actual contact with the surface of the retort, owing to the increase in the ratio between the perimeter and the area of a polygon that occurs when the area is reduced, and that it is also exposed to contact with a greater amount of heated surface as it escapes from the interior of the charge. But experience shows that the combined effect of the radiant heat and the contact with the heated surface in the space above the charge is less harmful when the space is small, and contact with the heated portion of the charge does not have as much effect as contact with the surface of the retort, since during the period in which the greatest amount of gas is given off, the temperature of the charge is much lower than that of the retort walls, as, during the first two hours, the temperature of the charge does not exceed 1200 deg. F.,

while that of the interior surface of the roof of the retort is, in recuperative benches, about 2000 deg.

It is therefore important that the size of the retort should be so chosen that the charge which can be carbonized in the desired length of time with the heat to be carried, will fill the retort as full as it is possible to have it and still leave room for the operation of the drawing and charging tools.

Yields of Gas and By-Products

55. What are the chief commercial products obtained by the gas manufacturer from the distillation, in retorts, of 2,000 pounds of average Pittsburgh or Youghiogheny coal? What amount of each is produced and what effect has the temperature of the retorts upon these amounts?

Ans. The chief commercial products obtained by the gas manufacturer from one net ton (2,000 pounds) of average Pittsburgh or Youghiogheny coal distilled in coal gas retorts at a fairly high temperature are:

9,800	cubic feet of gas of 14 to 15 candle power, as determined with a flat flame burner,
1,300	pounds of coke,
12½	gallons of tar,
27	gallons of ammoniacal liquor of from 6 ounces to 8 ounces (3 deg. to 4 deg. Twaddel) strength,
1	pound of retort carbon.

These are average figures, but no two works will agree exactly in the results obtained. The 1,300 pounds of coke would be the total amount of coke produced and would contain about 1,125 to 1,175 pounds of clean coke, and 175 to 125 pounds of dust or breeze. The amount of breeze will vary with the manner in which the coke is handled, but should not run above the highest figure given. The amount of carbon specified is that removed from the retorts after scurfing and left for sale, and not the total amount actually deposited in the retorts.

Variation of Temperature and Effect on Yields

Variations in the temperatures of the retorts affect principally the yield of gas and tar, and, to a slight extent, the quantity of ammonia produced. The higher the temperature the greater the amount of gas, and the smaller the amount of tar that is produced. At low heats the make of gas will not be over 9,000 cubic feet per ton, and there will be an increase in the amount of tar produced. The weight of coke is not much affected by the temperature of carbonization, though it will be slightly greater with low heats owing to the retention of a small amount of volatile matter that would be driven out by high heats. The effect of the temperature of the retort on the production of ammonia has not been as thoroughly determined as the effect on the yield of gas and tar, but a good authority (Mr. L. T. Wright) states that the production of ammonia is greater with medium heats than it is with either high or low heats. The production of carbon increases as the temperature of the retort rises.

An Example in Calculation of Equivalent Prices of Coal

56. A net ton of one of two gas coals that are available for use yields 9,000 cubic ft. of gas, 700 pounds of coke for sale, 11 gallons of tar and 4 pounds of pure ammonia, while a net ton of the other yields 9,800 cubic ft. of gas, 800 pounds of coke for sale, 12 gallons of tar and 5 pounds of pure ammonia. The average make per retort per 24 hours is 8,100 cubic ft. with the first coal and 8,820 cubic ft. with the second. In both cases retort house labor costs $4 per each six retorts per 24 hours and the prices for the products are: Gas, $1.25 net per 1,000 cubic ft.; coke, $4 per net ton; tar, 3 cents per gallon, and ammonia, 5 cents per pound. The first coal costs $2.50 per net ton. What is the equivalent price of the second?

Ans. To solve the problem set in the question it is necessary to determine the price at which the second coal would have to be bought, in order to make the cost of gas in the holder per 1,000 cubic ft. the same as it is with the first coal at $2.50. The only items in this cost that are taken as varying are the cost of coal and that of retort house labor. With coal No. 1 the net cost of coal, after deducting the value of the residuals produced, is:

Gross cost of coal		$2.50
Less—Coke 700 pounds @ $4 per 2,000 pounds	$1.40	
Tar, 11 gallons @ 3c	.33	
Ammonia, 4 pounds @ 5c	.20	1.93
Net cost of coal per ton		$0.57

As each ton of coal yields 9,000 cubic ft. of gas the net cost of coal per 1,000 cubic ft. is $\frac{57}{9} = 6.33$ cents.

Since the retort house labor costs $4 per 24 hours for six retorts and the yield of gas per retort per 24 hours is 8,100 cubic ft., the cost of retort house labor per 1,000 cubic ft. is $\frac{400}{48.6} = 8.23$ cents. With coal No. 1 at $2.50 per ton the combined cost of coal net and retort house labor is therefore 6.33 cents + 8.23 cents = 14.56 cents.

In the case of coal No. 2, the cost of retort house labor being, as above, $4 per 24 hours for six retorts, and the yield of gas per retort per 24 hours 8,820 cubic feet, the cost of retort house labor per 1,000 cubic ft. is $\frac{400}{52.92} = 7.56$ cents. As the cost of

retort house labor and the net cost of coal are assumed to be the only variable items in the cost of gas per 1,000 cubic feet in the holder, the sum of these two items must be the same in the two cases to make this holder cost the same. Hence the net cost of coal per 1,000 cubic ft. must be 14.56 cents — 7.56 cents = 7.0 cents. The yield of gas per ton being 9,800 cubic ft. the corresponding net cost of coal per ton will be $9.8 \times 7 = 68.6$ cents, and the gross cost will be:

Net cost of coal		$0.686
Add—Coke, 800 pounds @ $4 per 2,000 pounds	$1.60	
Tar, 12 gallons @ 3c	.36	
Ammonia, 5 pounds @ 5c	.25	2.21
Gross cost of coal per net ton		$2.896

or say $2.90. That is, the cost of gas per 1,000 cubic ft. in the holder will be the same with coal No. 2 at $2.90 per net ton as it is with coal No. 1 at $2.50, and therefore $2.90 is the highest price per net ton that can be paid for coal No. 2 in competition with coal No. 1 at $2.50 per net ton.

A Problem in Exhauster Belt Rupture

57. In a coal gas plant the hydraulic main is D-shaped; the seals of the tar and liquor overflows are: hydraulic main 18 in.; hot scrubber, 20 in. The dip-pipes are 30 in. long and dip 1¾ in. into the liquid in the hydraulic main. The internal area of each is 38 square inches. There are six to each section. The area of the liquor in the hydraulic main, outside the dip-pipes, is 18 square feet. One bench is idle. All the others are at work. There is a compensator and by-pass on the exhauster, the by-pass not automatic. The belt on the exhauster breaks. Where will gas show first? At what pressure will it appear at the mouthpieces of the idle retorts? What would you do upon discovering the trouble, if it was your duty to remedy it?

Ans. To simplify this problem we assume the pressure of the gas within the hydraulic main to be the same as that of the atmosphere, and that, therefore, the surfaces of the liquid in the main and in the dip-pipes of the idle bench are at the same level. We further assume that the liquid in the hydraulic main and in the seal pots has the same density as water.

The belt of the exhauster breaking and the generation of gas continuing, the pressure in the apparatus rises until an exit is forced and gas escapes into the atmosphere.

Gas Shows First at Shallowest Seal

Gas will show first where the resistance to its escape is least and this will be through the shallowest of seal between the hydraulic main and the exhauster, unless the conditions of size of hydraulic main and size and dip of the dip-pipes permit it to escape through the dip and stand-pipes before blowing either of the seals.

There are six dip-pipes—each with 38 sq. in. internal area, or 228 sq. in area for six. To fill them one inch in height will take 228 cu. in. of liquor. The area of liquid outside the dips is 18 sq. ft. $= 18 \times 144 = 2{,}592$ sq. in. The dip-pipes dip 1¾ in. Before gas can pass into the dip-pipes all the liquor in the main above their lower ends must be forced up into them. That is, the liquor covering 2,592 sq. in. of surface to a depth of 1¾ in. must be forced up six dip-pipes, having a total area of 228 sq. in. $2{,}592 \times 1\frac{3}{4} = 4{,}536$ cu. in. of liquor in the main above the lower ends of the dip-pipes. $4{,}526 \div 228 = 19.9$ in., the depth to which the liquor in the main will fill the six dip-pipes before gas can reach their lower openings and pass up through the liquor. But the problem states that the dip-pipes dip 1¾ in. into the liquor. Therefore they contain 1¾ in. depth of liquor before that from the hydraulic main enters them. This added to 19.9 in. obtained as above gives 21.6 in. in depth to which the liquor would fill the dip-pipes before gas could enter. Any pressure in excess of this 21.6 in. will cause gas to bubble up through the dip-pipes.

The shallowest seal is at the hydraulic main overflow. It is 18 inches. Gas would show here first, as soon as the pressure exceeded 18 inches.

If this overflow were too small to carry off the gas, the pressure in the main would continue to rise until gas began to escape through the 20 in. seal of the hot scrubber, and if these two outlets did not sufficiently relieve the pressure, gas would, when the pressure had increased to more than 21.6 inches, escape up the dip-pipes of the idle benches.

If the caps had been removed from the bridge-pipes of the idle benches (which is good practice when letting down a bench), the gas that would otherwise appear at the mouthpieces would escape at the bridge-pipes.

Upon discovering the trouble at the exhauster the by-pass should be at once opened, to remain open until the reserve exhauster, if there is one, has been turned on, or the belt repaired and the stopped exhauster started. All the seals that have "blown" should be filled as soon as the by-pass has been opened.

Methods Used in Gasifying Oil for Enrichment of Coal Gas

58. Describe one or more of the methods commonly employed for gasifying oil, when this is used for the direct enrichment of coal gas.

Ans. Oil gas for the direct enrichment of coal gas may be made in the following manner: One, or more, of the ordinary coal gas retorts are set aside for the purpose, and suitable pipe connections made between each one of these retorts and a small overhead oil tank holding from 50 to 150 gallons. In each connection there should be a siphon sufficiently long not to be blown by any pressure that is liable to exist in the retort under normal conditions. A valve should be placed on the oil pipe near the tank, with another one near the retort. The oil may be fed to the retort by gravity alone, or it may be blown in with steam. In the former case a sight feed is desirable as it affords an opportunity to see at all times the rate at which the oil is being run into the retort. Such a feed can be made of a Mason fruit jar (see American

Gas Light Journal, Vol. 74, page 605, or Progressive Age, Vol. 19, page 190), and should be placed next the oil valve nearest the retort and between this valve and the retort, but before the siphon. After passing through the sight feed and siphon, the oil flows into the retort by a pipe screwed into the side or top of the mouthpiece with a long thread, so that a coupling can be screwed on the end inside the mouthpiece. A short nipple with either a union, or long thread and coupling on its other end is screwed into the coupling, then another nipple and an elbow pointing to the back of the retort. From this elbow a pipe, supported on bricks so as to clear the bottom by 3 or 4 in., is run to within 18 in. of the back of the retort, then turns and runs back until its open end is about 1 ft. from the back wall of the retort. During its travel back and forth in the pipe the oil is vaporized by the heat to which it is exposed, and the vapor formed, escaping from the open end, is gasified in passing from the back to the front of the retort. The flow of oil is regulated to suit the heat, the correctness of the adjustment being determined by the appearance of the stain produced on a piece of white paper against which a jet of gas issuing from a small orifice in the retort mouthpiece or stand-pipe, is allowed to impinge. A dry straw-colored stain is obtained when the retort is working properly, while a greasy stain shows that too much oil is being run in, and a sooty stain that too little oil is being used. An expert oil maker can regulate the flow of oil by the appearance of the vapor as it issues from the orifice without the use of the white paper for obtaining a stain.

The pipe inside the retort should be 2 in. in diameter.; that carrying the oil to the retort ¾ in. to 1 in.

Operating Details When Steam Is Used to Blow in Oil

When the oil is blown in by steam, a steam connecnection is made to the oil pipe outside of, but near to, the retort in such a way that the stream of oil flows across the jet of steam and is thus picked up and carried along. A ½ in. steam pipe, with its end drawn to an opening 1/16 in. to 1/32 in. in diameter, screwed into one end of a tee set with its run horizontal and its side outlet, into which the oil pipe is screwed, vertical, is very commonly used. After passing through the side of the mouthpiece, the ¾ in. or 1 in. oil pipe turns and running parallel to the axis of the retort passes through a cap on the end of a piece of 5 in. pipe and into the open end of a 2½ in. or 3 in. pipe fixed concentrically inside of the 5 in. pipe. The back end of the 2½ in. pipe is closed and the 1 in. pipe extends to within 3 or 4 in. of the closed end. As indicated above, the front is open and within 3 or 4 in. of the closed front of the 5 in. pipe, which has the back open and about 12 in. from the back of the retort. By this arrangement the oil and steam is made to travel back through the 1 in. pipe, forward through the annular space between this and the 2½ in. pipe, and then back through the annular space between this and the 5 in. pipe, from the open end of which it escapes as vapor to be gasified while passing along the retort to the mouthpiece and stand-pipe. The flow of oil is regulated by the same test as is used for the gravity feed, and as little steam is used as possible, the valve being barely raised from its seat. It is claimed that the use of steam prevents the pipes inside the retort from blocking up with carbon, otherwise it has no advantages, and the largest manufacturers of straight oil gas in this country prefer the gravity feed without any steam.

The "Cartridge" Method of Gasifying Oil

Another method of gasifying oil for the enrichment of coal gas is known as the "cartridge" method. In one modification of this method a cylinder, made by flattening and welding the ends of a piece of 3 in. or 4 in. pipe about 3 ft. long and provided with a circular opening in the side about ¾ in. in diameter, is filled with oil, the opening closed with a cork or wooden plug, and the loaded "cartridge" is then thrown into a retort on top of the coal when the retort is charged. The cork or wooden plug is carbonized by the heat, and as the oil vaporizes from the same cause the vapor escapes through the opening and mixes with the coal gas.

In another modification the cartridges consist of pieces of 2 in. or 3 in. pipe, 3 ft. or 4 ft. long, which are plugged at one end with a wooden plug and filled with sawdust. Oil is poured in until the sawdust is thoroughly saturated, then the open end is also plugged with a piece of wood and the "cartridge" is used as above.

This method may be useful as a temporary expedient, but if direct oil enrichment is adopted for regular use, it is better to make the oil gas in retorts set aside for that purpose, in which the oil can be gasified under properly regulated conditions that cannot be obtained when it is used in a retort charged with coal. Moreover, the extra labor required to fill and handle the cartridges is entirely avoided when the oil is run into the retorts by gravity.

Arguments for and against Anti-Dips

59. What are the arguments for and against Anti-dips?

Ans. The principal arguments in favor of the use of Anti-dips, or arrangements for doing away with the liquid seal on the dip-pipes of coal-gas retorts while the retorts are closed and making gas, and either restoring this seal when the retort is out of use or open or else isolating the retorts at such times from the hydraulic or foul main by means of valves or other appliances, are that these Anti-dip arrangements prevent the excessive deposit of carbon in the retorts, that they improve the quality of the gas made, and that they lengthen the life of the retorts, other conditions remaining the same.

These advantages are supposed to spring chiefly from the fact that the removal of the seal allows the gas to flow out steadily and does away with the continual pulsations of pressure found in the retort when the gas has to force its way out through a liquid seal.

(Thirteenth Installment Next Week)

MAKING PREPARED ROOFING WITH GAS

(Continued from page 270)

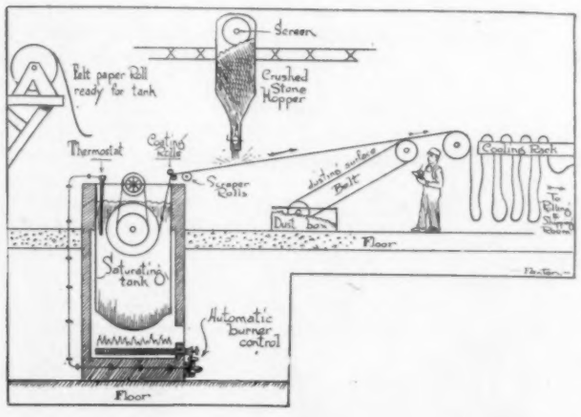
mum depth of asphaltum on the roofing. This device gauges the amount of coating desired, returning any surplus asphaltum to the saturating tank and also cutting off the excess asphaltum adhering to the felt and returning it to the tank also.

3. The roofing now passes over a scraper roll, eliminating any residual asphaltum clinging to the underside, returning it to the saturating tank.

Feeding the Pulverized Stone

4. It now passes underneath a hopper spout, feeding pulverized stone or sand onto the surface. Various kinds of colored surfacing are used. If a green roofing is desired a green stone is used. If a red roofing is desired a red stone is used. If a heavy coarse surface is desired, a rough stone will be used. There is no end to the possibilities of varying the finished surface of prepared roofing.

5. An endless belt carrying a charge of a powdered talc-like substance meets the underside of the roofing. This powder adheres to the roofing later on, preventing it from sticking to itself when rolled for shipment.



6. The prepared roofing now passes over and through water-cooled rolls, pulling rolls and looping rolls always with the powdered surface facing the circumference of the rolls. Any excess stone not adhering to the exposed surface of the roofing is thrown off by its own inertia at the very first cooling roll and returned to a gravity conveyor, which delivers it back to the stone hopper mentioned in paragraph four.

7. After the roofing is thoroughly cooled it passes to a measuring machine that automatically cuts the roofing into the proper length and rolls it into a neat package ready for delivery.

The Finished Product

Each finished roll measures 150 square feet of roofing. They are 32 in. wide and 60 in. long and when laid measure 30 in. in width exposed. A finished roll of green roofing weighs approximately 135 lbs. Of this total weight 66 lbs. is asphaltum, 21 lbs. felt and 48 lbs. stone. Each of the 750 lbs. felt rolls mentioned in paragraph one of the description of the process makes on an average of thirty-seven rolls of roofing paper or approximately 2,250 lineal feet.

Quality Production.

Each saturating tank has a capacity of eighteen rolls of felt per day of nine hours. These eighteen rolls produce 650 to 750 rolls of finished product, or approximately 100,000 square feet of roofing per day per tank. Industrial gas is used to keep the temperature of the asphaltum in the saturating tanks at the proper temperature. Six 1½ in. atmospheric pipe burners 5 feet long are placed beneath each tank. The gas flowing to these burners is controlled by gas thermostats. This ingenious mechanism is adjusted so as to maintain the temperature of 400 deg. F. (plus or minus 3 deg.).

Value of Installation

The value of this type of installation lies in the fact that the roofing all comes from the saturating tank with the same thickness of coating. This means a uniform roofing is produced which, of course, is very essential to the manufacturer.

If the asphaltum is too hot the paper will be likely to tear in manufacture. The surfacing will not adhere well and that which remains will sink into the asphaltum too far.

If too cold—the asphaltum is too heavy and consequently means more asphaltum than necessary per roll, also an improper depth of impregnation. Cold asphaltum also impedes production when on a time basis because of labor waiting for the proper temperature.

GAS AND FUEL OIL PRODUCTION IN 1923

The production of gas and fuel oils in 1923 was reported to the Bureau of Mines as 12,074,191,693 gallons, an increase over the preceding year of 12.78 per cent. Imports were 516,022,937 gallons. The total new supply amounted to 12,590,214,630 gallons, an increase of 16.25 per cent over the preceding year. Domestic demand amounted to 10,978,285,596 gallons and exports were 1,401,622,173 gallons, making a total demand of 12,379,907,769 gallons, an increase of 14.03 per cent over 1922 figures. Stocks were increased a little over 200,000,000 gallons during the year, amounting at the end of 1923 to 1,515,034,711 gallons.

IDEAS OF INTEREST TO THOSE WHO SELL

(Continued from page 268)

Hot Day is the ——— Dining Room." Why not use this idea in connection with gas ranges, saying: "With the oven regulator set there is no need to swelter in a hot kitchen, etc., etc."

Keep It Before Them

Blotters make wonderful enclosures for letters, statements and even first-class mail. As the Standard Paper Company, Richmond, Va., says, they give "More Mental Impressions from each Printed Impression than any other type of direct advertising we can think of." Blotters printed in the form of business cards are used by one gas company that we know of for the use of salesmen, while another sends out a three months' calendar printed on blotters.

Keeps Vacation List

There is a commercial man in one of the central states who is what may be termed "a bug on good mailing lists." The latest one he has developed he calls his vacation list. On this list he keeps the summer and winter addresses of all his customers in order that they may be advised of any special sales he is staging and of any new appliance that he stocks. The names on this vacation list receive all direct mail sent to the folks at home and in addition he often writes a personal letter to them in regard to some appliance in which he believes them to be interested. Not a bad idea to keep folks sold.

Bring the Men Folks In

Not long ago a commercial man made quite a hit by appealing to "the men folks." Here is the way he did it: He held a Special Baked Goods Demonstration and made a special bid to men to "try the cakes, pies and hot biscuits—baked like mother used to bake them." This man says, "Some folks say the woman is the greatest purchasing agent in America—while others say the man is. Be it as it may, we are of the opinion that man is the biggest paymaster and that he has a finger in most of the purchases made by woman and that it is not a bad idea to cater to him now and then.

"Show man the better appliances and he will suggest that the purchasing agent push him over the dotted line if he don't actually buy of his own volition; sell 'em all, we say. That is why we made this bid for men; and it went over, too!"

Frailties of Conferences

Conference is a word which has been very much overworked. There has been many a splendid idea killed "in conference" and many a "line worker" emasculated by attending them and having his ideas dashed to pieces for the simple reason that his desk is in the general office, or that he is one from out the ranks. Let us strive to retain an open mind on new ideas. It is a progressive spirit and when we cease to be progressive in business we are, commercially speaking, dead. We then become dwarfed in mind and body and the world will progress regardless, leaving us to rot and decay, nursing our antiquated notions.

Co-operative Advertising

The gas industry has reached that stage in its march upward and onward where it may profitably think of the unlimited opportunities to be derived from co-operative advertising.

We have read that one-eighth of the total income of the United States ($64,000,000,000) is spent on automobiles and that somethnig like one-eighth of that money, that is $1,000,000,000, is spent for gasoline. Education and gasoline expenditures go hand in hand, as it were, each running about one billion a year.

Let's advertise more. Educate folks as to the uses of gas. Gas makes a house a home, while gasoline makes a home a place to go to change one's clothes and prepare to hurry some place else. Advertise more.

INTERNAL CORROSION OF GAS HOLDERS

(Continued from page 264)

Analysis of Deposit

The deposit formed on the plate lap was analyzed very carefully and found to contain:

Moisture	3.56%
Free sulphur	4.13
Ferrous sulphide	17.10
Ferrous sulphate	.16
Manganese sulphide	.73
Silica	.40
Prussian blue	.20
Ferric oxide—(Fe_2O_3, 3 H_2O)	1.99
Magnetic oxide of iron—(Fe_3O_4, H_2O)	65.80
Organic matter and undetermined	5.93

You will note that practically no cyanogen is present, but that oxygen and sulphur are very prominent.

Analysis of Scale from Crown Plates

A sample of loose scale was removed from the gas side of the crown plates and analyzed as follows:

Moisture	1.58%
Free sulphur	.19
Silica	.50
Prussian blue	.17
Ferrous sulphate	2.19
Ferrous phosphate	.69
Free iron	.00
Ferric oxide—(Fe_2O_3, 3 H_2O)	10.80
Magnetic oxide of iron—(Fe_3O_4, H_2O)	73.10
Organic matter and undetermined	10.78

Analysis of Mud

A sample of mud was taken from the top of the mound in the pit of the holder and analytical results were as follows:

Moisture	39.42%
Organic matter	5.64
Free sulphur	5.72
Ferrous sulphide	12.00
Ferrous sulphate	.14
Ferric oxide—(Fe_2O_3, 3 H_2O)	23.30
Prussian blue	2.25
Silica	.00
Undetermined	11.53

Analysis of Metal of Crown Plate

A sample of metal was taken from a cleaned crown plate and analyzed as follows:

Combined carbon	.09%
Graphitic carbon	.09
Chromium	.00
Copper	.26
Manganese	.06
Nickel	Trace
Phosphorus	.15
Silicon	.18
Sulphur	.041
Slag	1.45
Iron (by difference)	97.679

In addition to a chemical analysis, a metallographical examination confirmed the crown material as being wrought iron carrying .26 per cent of copper, which was an impurity in the iron manufacture and not intentionally added. Photomicrographs revealed very clearly the characteristic slag inclusions of wrought iron.

A sample of water was also taken from the holder pit and analyzed. No acidity was indicated and since destructive corrosion was evidenced on the interior of the holder crown, the question of the water carrying the active corrosive was somewhat remote.

How the Corrosion Took Place

The procedure of the corrosion may be briefly outlined thus:

Condensed water vapor adhered to parts of the interior of the crown at points of least slope near the center crown plate and acted as a local collector of hydrogen sulphide, which attacked the metal or metallic oxide. This iron sulphide oxidized and again sulphided, fulfilling the common purifying cycle. In the plate laps at the seams, the deposit accumulated; on the plate's interior surface, sulphide and oxide tended to dislodge and fall into the pit, thus exposing a fresh surface for further corrosive action. It will be noted that this holder crown merely acted as a gas purifier.

City gas should not be put in holders if it contains hydrogen sulphide, sulphur oxides, much oxygen, or cyanogen compounds, if such practice can possibly be avoided. In cases where such elimination is impracticable, as in relief holders, for example, a most careful inspection should be made as often as possible. Particular attention should be paid to interior seam laps in the crown and to the interior surfaces and thickness of the parts of the plates close to seams. This especially applies to the plate circles nearer the center crown plate.

No Undue Alarm Need Be Caused

Nothing in this paper should cause any undue alarm, because when the small percentage of commercial holders which have been noticeably corroded is considered, we can well realize how effectively the gas engineers of the country, by eliminating the corrosive elements of the gases before storage, have conserved the structures entrusted to their care. A consideration of the very few holder accidents of which we have knowledge indicates that even in times of stress and disruption, holders containing the ordinary gases used in cities cannot explode. Combustion may possibly take place, explosion never. When the iron container is pierced or torn above the water line, the positive pressures of the contained gas will not permit air to be drawn into the holder to form explosive mixtures, but the gas merely escapes with or without combustion, depending on governing conditions.

Current Market Prices

COALS (By Courtesy of Coal Age)

A. Bituminous.

(Spot prices, F. O. B., mines, net tons).

High Volatile, Eastern	Market	Price
Pool 54-64 (Gas Standard))	New York	$1.40 to $1.65
Pittsburgh screened gas	Pittsburgh	2.50 to 2.65
Pittsburgh gas, mine run	Pittsburgh	2.25 to 2.40
Kanawha lump	Columbus	2.40 to 2.70
Kanawha mine run	Columbus	1.40 to 1.65
West Virginia lump	Cincinnati	2.75 to 3.00
W. Virginia gas mine run	Cincinnati	1.35 to 1.50
Midwest		
Indiana 4th vein lump	Chicago	2.75 to 3.00
Indiana 4th vein mine run	Chicago	2.25 to 2.50
South and Southwest		
Big Seam lump	Birmingham	2.50 to 2.75
Big Seam mine run	Birmingham	1.75 to 1.85
Southeast Kentucky lump	Louisville	2.75 to 3.25
Southeast Kentucky mine run	Louisville	1.50 to 2.00

B. Anthracite.

(Spot prices F. O. B. mines, gross tons),

Market	Freight rates	Independent	Company
Egg New York	$2.34	$8.00 to $8.50	$8.75 to $9.25
Egg Philadelphia	2.39	8.50 to 10.00	8.75 to 9.25
Egg Chicago (net tons)	5.06	7.50 to 8.80	8.00 to 8.35

COKE (By Courtesy of Iron Trade Review).

Connellsville, furnace	$4.00 to $4.40
Wise County, furnace	4.50 to 5.00
Alabama, furnace	5.00 to 6.00
Foundry, Newark, N. J., del.	10.91
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.50
Foundry, St. Louis	12.50
Foundry, Granite City, Ill.	12.50
Foundry, Alabama	5.00 to 6.50

PETROLEUM (By Courtesy of Oil, Paint & Drug Reporter)

(Prices at wells, per bbl.)

Pennsylvania—Ohio—West Virginia.	
Cabell, West Virginia	$2.20
Corning, Ohio	2.15
Lima	2.28
Pennsylvania	4.00 to 4.50
Wooster, Ohio	2.15
Indiana—Illinois.	
Illinois	2.07
Indiana	2.08
Oklahoma—Kansas.	
Healdton	.90
Mid-continent (low gravity)	1.00
Gulf Coast.	
Gulf Coast, Grade A	$1.65
Gulf Coast, Grade B	1.40

GAS OILS.

Gas Oil, Bayonne, bulk gal.	5½c
Gas Oil (32-36) Illinois-Indiana, gal.	5.75 to 6.00c
Gas Oil (32-36) Oklahoma, gal.	3¼ to 3½c
Gas Oil (32-36) Gulf Coast, gal.	4½ to 5 c

PIPE AND FITTINGS—CAST IRON GAS PIPE.

(By Courtesy Iron Trade Review.)

Four-inch, Chicago	$66.20 to $67.20
Six-inch and over, Chicago	62.20 to 63.20
Four-inch, Birmingham	57.00 to 58.00
Six-inch and over, Birmingham	53.00 to 54.00
Four-inch, New York	70.60 to 71.60
Six-inch and over, New York	65.60 to 66.60
Standard fittings, Birmingham, base	115.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20.

BY-PRODUCTS

(By Courtesy of Oil, Paint and Drug Reporter)

Ammonia aqua, 16 deg. drums lb.	5 to 5¼c
Ammonia aqua, 20 deg. drums lb.	6¼ to 6½c
Ammonia aqua, 26 deg. drums lb.	6¾ to 7 c
Ammonia squa, anhydrous cylinder, lb.	30 to 36 c
Ammonium sulphate, bulk F. O. B. Works, per 100 lbs.	$2.85 to $2.95
Potash prussiate, yellow casks, lb.	19 to 20 c
Potash prussiate, red casks, lb.	42 to 45 c
Soda prussiate, yellow casks, lb.	13 to 13½c
Soda sulphocyanide, barrels, lb.	45 to 55 c

COAL TAR BASIC PRODUCTS.

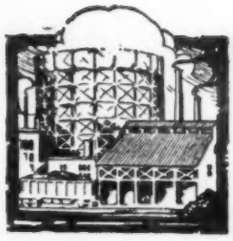
(By Courtesy of Oil, Paint and Drug Reporter)

Benzol C. P. tanks, works, gal.	25 to 30c
Benzol, drums, gal.	30 to 35c
Benzol, 90% tanks, works, gal.	23 to 28c
Benzol, 90% drums, gal.	28 to 33c
Napthalene, flake, barrels, lb.	6¼ to 7c
Napthalene, crushed bags, lb.	5½ to 6c
Solvent Naphtha, water white works, gal.	28c
Solvent Naphtha, drums, works, gal.	33c
Solvent Naptha, Crude Tanks, works, gal.	25c
Solvent Naphtha, drums, works, gal.	30c
Toluene, C. P. tanks, works, gal.	31c
Toluene C. P. drums, works, gal.	36c

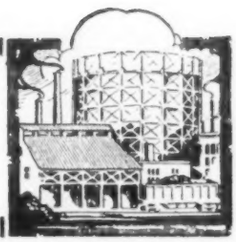
Though the tendency of coal prices shows an even more marked downward course, consumers evince no disposition to recede from their recent policy of keeping out of the market and awaiting developments. In the absence of an impelling motive to buy, such as the menace of a nation-wide strike, buyers see no incentive to making commitments.

Prices of crude oil at the wells have increased throughout most of the oil fields. Production has recovered much of the recent loss. The refinery market was not very active.

As far as gas oil is concerned, the market remained last week in its recently characteristic state of stagnation. Buying is only routine, as bidders are firm in their ideas of a top figure, and refiners have not been able to agree that such a price is enough to justify letting go of large lots.



NEWS OF THE GAS INDUSTRY



Gas Appliance Society Holds Second Annual Convention

The second annual convention of the Gas Appliance Society of California was held on the evening of February 8 in the Pacific Gas & Electric Company's gas laboratory in San Francisco. The extraordinary vitality of this comparatively new organization was evidenced by the fact that there was an attendance of 525, representing dealers, manufacturers and jobbers, as well as gas companies from California and other Pacific Coast states.

Chairman George P. Egleston, of the H. R. Basford Company, presided and a program of unusual value to the gas industry was presented. The most important business before the convention was the adoption of plans for the society's spring campaign, to be held during the week of April 7-12, under the name of "Gas Equipment Exhibit for Better Homes." Mr. H. M. Crawford, secretary of the state advisory committee, presented a complete report upon this, which was approved by a unanimous vote of the different units.

This annual exhibit is held each year during the month of April. It involves 5,000 participants, including 1,550 plumbers, 1,168 furniture dealers, 1,016 hardware dealers, 280 gas appliance dealers, 502 newspapers and 27 gas companies, all working to show the buying public the most important and up-to-date creations in gas-burning equipment.

The exhibit this year will be state-wide in scope and will include many features which should create public interest in gas equipment. All dealers will be supplied with four-color posters for trimming their windows. Every dealer handling gas appliances will have a special window trim during the exhibit. The newspapers will run feature stories concerning gas and gas equipment, which will tell the part that these appliances play in the home today—a silent servant bringing happiness and lightening labor in every home where it is used. Entertainment concerning gas will be broadcasted by radio during the exhibit, and the dealers will put forth a special advertising effort at this time.

Gas is a wonderful commodity in our present-day civilization, and the purpose of the Gas Appliance Society in its annual exhibit is to tell the public what a true friend they have in gas—the ideal fuel.

Following this came a series of addresses. Mr. A. L. Carne, publicity director of the Furniture Exchange in San Francisco, talked upon the subject of "Dealer Merchandising of Gas Appliances and How It Can Be Developed." His talk was illustrated, in part, with specially prepared lantern slides and concerned advertising and other retail problems that confront the sellers of gas appliances.

Mr. C. B. Babcock, president of the C. B. Babcock Company, discussed the "Growth of the Gas Appliance Business and Its Future Possibilities." It was his opinion that the age of gas as a fuel had arrived and should be made the most of. In the course of his remarks he deprecated price-cutting on appliances and advocated the most open candor as well as strictly up-to-date service in dealing with the public.

Mr. H. P. Vollmer, of the Vollmer - Chipman - Burrell Company offered some valuable suggestions on "Window and Shop Display of Gas Appliances." It was Mr. Vollmer's advice that the best display a business man can make in his business is that of service, pure and simple.

The closing address was given by Mr. Wigginton E. Creed, president of the Pacific Gas and Electric Company. In his opening Mr. Creed declared the fixed policy of his company to be against its engaging in the merchandising business of appliances. "It believes in the principles, policies and purposes of the Gas Appliance Society and its members," he said, "and is glad to co-operate with the dealers in selling high-grade appliances, installing them properly and making certain that they operate satisfactorily.

"As an index of the soudness of the California policy it may be noted that statistics for numerous Eastern states show that annual gas appliance sales in these sections amount to only $5 per consumer, while here in California, where dealers and company co-operate, the sales amount to $12.50 per consumer."

Mr. Creed spoke of the great expansion achieved by the gas industry in the year which is past, the greatest in its history. To quote:

"All that the gas industry lost in lighting to the electric industry it has made up in other directions, particularly in domestic heating and cooking and in industrial uses. The primary function of electric power is to supply lighting and to furnish the motive power for industry. In view of the numerous demands upon the electric industry for these purposes, the gas industry need have no apprehension that it will be superseded by electricity for heating; indeed, the potential supplies of electric power will not prove great enough to supply all the demands of lighting and industry and assume the burden of the heating load as well.

"In the last year the gas industry has reflected the growth of the country and the State of California. The future of the appliance dealer as well as the future of the manufacturer of gas is inseparately interwoven with the future growth of California."

The Gas Appliance Society is a co-operative sales organization of the entire gas industry. It includes manufacturers of gas equipment,

distributors, jobbers, retail dealers and gas companies. It is the first organization of its kind, California being the only state where the gas companies have given up the merchandising of gas appliances and have turned that business over to the dealer. The idea has proven so mutually profitable to all its members that it is being viewed with a great deal of attention in the East.

Its objects are to promote the sale of gas-consuming appliances of quality and the use of gas generally; to establish a spirit of fraternity between its members as well as cordial relations between manufacturers, jobbers, distributors, retailers, gas companies and consumers; and, to facilitate the education of employees of its members to enable them to better perform their duties.

There are at present fifteen organized units of the society in northern and central California. These units have their own offices and function in a manner suitable to local conditions. They are tied together, however, by a state advisory committee. Any movement which involves the co-operation of the different units is directed by this committee. In this way the society's annual exhibit campaign is made successful through the entire state, even though units are not actually organized in some portions of it.

Natural Gas Association of America Announces Convention Dates

The proverbial claim of the circus manager that his show "is bigger and better than ever" may be fittingly applied to the nineteenth annual convention of the Natural Gas Association of America, which, according to the announcement of Secretary-Treasurer William B. Way, will be held in Cleveland, Ohio, May 19, 20, 21 and 22. The interest manifested in these annual affairs is tremendous, not only among the members of the "gas fraternity," but the public at large. Some idea of this may be gained when it is stated that fully 50,000 persons visited the Jefferson Co. armory in Louisville, Ky., where the association conducted its convention in 1923.

Secretary-Treasurer Way states that there are several interesting surprises in store for the members of the Natural Gas Association of America, of whom about 2,000 are expected to travel to the Forest City for the convention. Not least among these will be the men of prominence who have consented to address the assemblage. These speeches will be confined to the afternoon sessions, to which the public will be invited.

As is customary at these conventions, the Natural Gas Supply Men, Inc., will put on their interesting exhibition of the most modern gas appliances, equipment, derricks, tools, compressors, pipe fittings, etc. Special attention will be paid to the demonstration of the proper utilization of gas from the consumers' standpoint. This will be one of the principal educational features of this exhibition and one which is bound to prove as interesting as valuable. The consumer at large is now aware that, by the proper adjustment of appliances, he is able to save much money.

New Office Building for Gas Co.

Providence, R. I. — Announcement is made by officials of the Providence Gas Company of the completion of arrangements for the construction of a five-story office and sales building at the corner of Weybosset and Orange streets. The new building, when completed, will house all the administrative departments of the gas company as well as the appliance sales rooms. All of the contracts have been awarded, and it is planned to start immediately the work of tearing down the buildings which at present occupy the site.

On the street floor will be located the commercial department and the appliance store. The accounting department will be located on the second floor, while the third floor will be left open for rental purposes. On the fourth floor will be the executive offices and on the top floor will be a hall and rooms for use by the employees of the company.

New Gas Rates in State of Washington

Tacoma, Wash.—A new and optional schedule of heating rates was filed with the State Department of Public Works recently by the Tacoma Gas and Fuel Company, with April 1 as the proposed date for the change from present rates. According to General Manager D. J. Young, the new rates will approximate 15 per cent lower than those in force now.

It is provided that any customer may, of his own option, elect to pay according to the new schedule, which is an adoption of a new method of rate computation featuring principally the "demand charge."

Schedule D, applying in Tacoma, Ruston and Regents Park, provides that the rate shall be made up on the customer's charge of $6 per meter per year; plus the "demand charge" of 36 cents per year per maximum hourly demand, with minimum of 100 cubic feet per hour; plus the commodity charge of 55 cents per 1,000 cubic feet of gas consumed.

The first two yearly charges are to be divided into monthly installments.

Schedule E, applying to Puyallup and the rest of Pierce county not covered by Schedule D, differs only in that the "demand charge" is 40 cents per year per cubic feet of maximum hourly demand. First filing of schedules of this nature were recently made by the Spokane gas utility.

Colorado Fuel and Iron to Spend $3,000,000

Denver, Colorado—To make its Minnequa steel plant one of the most modern in the United States, the board of directors of the Colorado Fuel and Iron Company has agreed to expenditures upward of $3,000,000. One of the principal improvements will be the placing of some electrical precipitators which will remove the dust and other impurities from the artificial gas made right at the plant, thereby giving a better heat. The gas made at this plant is quite a factor in the steel making departments, proving a great factor in the money making features of this large concern. During the late war the C. F. & I. ranked third as makers of T. N. T. for the Government, and all of it came from coal tar.

Seek to Ban Sale of Low Quality Gas Tubing

Because of numerous deaths due to defective tubing on gas burning appliances, the New York State Conference of Mayors is investigating to ascertain whether the cities of the state have the power to adopt ordinances regulating the sale of tubing. If it is found they have, an ordinance will be drafted and recommended for adoption by the cities, restricting the sale of tubing for gas appliances to such as is made according to stipulated standards of quality of material, workmanship and strength.

This matter was brought to the attention of the Conference of Mayors by the Empire State Gas and Electric Association. The condition to be remedied is not within the control of the public utility companies which supply gas. At present any person having gas service can go to a department store, a rubber goods shop or a junk shop and purchase a length of rubber tubing to connect his gas-burning appliance with a gas pipe in his home. If the tubing is sound and good, and the connections are properly made so that they are tight, no damage results. If the tubing is rotten, or the connections are loose so that they slip, or permit gas to escape, a death may result. In case of accident or death, the company supplying the gas is frequently blamed for the result of the victim's own ignorance or carelessness, or false economy in buying poor tubing.

Industrial Fuel Sales Promotion Committee Meet

Bridgeton, N. J.—The Industrial Fuel Sales Promotion committee of the New Jersey Gas Association met at the plant and offices of the Bridgeton Gas Light Company recently.

There were about forty men attending the meeting, coming from Salem, Atlantic City, Millville, Vineland, Glassboro, Pitman and some of the larger gas companies in the northern part of the state. Bridgeton was also well represented.

The meeting was called to order at 10 a. m. by J. P. Leinroth, of the Public Service Gas Company, chairman of the committee. He spoke upon "The Ways and Means of Getting the Industrial Load," as put into practice by his company.

G. C. Shadwell, sales manager of the Combustion Utilities Corporation, of New York, manufacturers of industrial plant equipment, spoke on "How to Sell Gas for Industrial Heating."

F. A. Tuttle, also of Public Service Company, gave an interesting talk upon "The Early Installations of Industrial Fuel."

This concluded the morning session and all attending the meeting went to the Library annex, where an excellent luncheon was served by Mr. and Mrs. Clifton Pierce, of Fairton.

After luncheon the meeting was resumed with an open discussion. Those responding were Charles A. Hoy and W. A. Norris, of Glassboro; L. O. Greiner and L. N. Yetter, of Atlantic City; Ralph Lee, Vineland; C. J. Wilson, Pitman and R. H. Jenkins, Salem. William H. Grim and Jacob B. Jones of Bridgeton also took part.

The meeting was a big success and beneficial to everyone present.

Organization of Public Service Co. of Northern Illinois Changed

Executive orders issued and made effective March 1 create important changes in the form of the organization of the Public Service Company of Northern Illinois. In an order which is signed by Samuel Insull, chairman board of directors, the principal changes are given as follows:

1. Creation of the position of vice-president in charge of public relations and service.

2. Transfer of purchasing and stores department activities to the jurisdiction of the vice-president in charge of finance and the establishment of separate purchasing and stores departments. This transfer will have the desirable effect of bringing together under one direction all departments having jurisdiction over moneys, materials and supplies.

3. The creation of an industrial relations department, headed by a manager of industrial relations.

4. Reorganization of the activities under the vice-president in charge of sales.

5. Change of title, "District Superintendent" to that of "District Manager."

In an order, the first in the series, it is announced that Charles W. Bradley, elected vice-president by the directors, is placed in charge of public relations and service. This order is signed by Samuel Insull, chairman board of directors, as is also another creating an industrial relations department and appointing W. J. MacPherson as its manager.

Other orders in the series are issued by Britton I. Budd, president. One of them defines the functions of Julius L. Hecht, vice-president in charge of operation. The former operating department, so-called, in all its ramifications and sub-departments, dealing with electricity, gas and water, comes under Mr. Hecht's charge.

John G. Learned, vice-president, is placed in charge of sales by another order. His administrative control will be exercised over the general office departments of power sales, lighting sales, gas sales, merchandise sales and the commercial division.

New Installation

The U. G. I. Contracting Company of Philadelphia has lately been awarded contract to furnish blue gas equipment and waste heat boiler for the Blaw-Knox Company of Pittsburgh, Pa.

The U. G. I. blue gas apparatus was installed in the hammer welding department of the Blaw-Knox Company a few years ago and has met with unqualified success.

The Blaw-Knox Company are well known leaders in the manufacture and fabrication of diversified steel products that are used all over the world.

Bond Issues

Fort Myers, Fla.—A bond issue of $445,000 has been sold by the city of Fort Myers, the money to be used for a number of municipal improvements, including the laying of additional gas mains, and generally improving and enlarging the facilities of the Fort Myers gas plant.

Bill to Prevent Accidents from Escaping Gas

Albany, N. Y. — Assemblyman Joseph Reich of Brooklyn has introduced in the Assembly at Albany a resolution relating to deaths from escaping gas in Greater New York:

"Whereas, There is general and widespread complaint in the City of New York of the poisonous and odorless quality of gas furnished by gas manufacturing corporations and

"Whereas, There is general complaint that in many buildings in such city the lighting fixtures maintained by landlords are so old and dilapidated that the stop-cocks turn completely around while putting out the light and permit the gas to escape, filling rooms with fumes of deadly gas, and

"Whereas, Deaths due to accidental illuminating gas poisoning in the City of New York have increased alarmingly in recent years, as appears from the statistical table furnished by the chief medical examiner of such city, as follows:

	*1	2	3	4	5	T'tl.
1921....	145	141	16	18	9	329
1922....	193	167	17	28	6	411
1923....	261	182	30	54	6	533

*E, Manhattan; 2, Brooklyn; 3, Bronx; 4, Queens; 5, Richmond.

"The above table including accidental deaths only and not suicides.

"Whereas, Such marked increase in deaths in the City of New York constitutes a grave menace and public hazard which should be remedied by proper and immediate legislation;

"Now, Be It Resolved (if the Senate concur), That a joint legislative committee be appointed to consist of six members of the Assembly and four members of the Senate, which committee shall, as speedily as possible, proceed to inquire into the quality, service and pressure of gas used for illuminating, heating and other similar purposes in the City of New York, and into the types and state of repair of gas appliances and fixtures used for such purpose and the complaint that such gas and gas appliances and fixtures constitute a menace to the safety and health of persons utilizing the same.

"Such committee would investigate and report to the Legislature of 925 the result of its findings at an expense of not exceeding $25,000. Resolution has been read and referred to the Ways and Means Committee, where it can come up for vote at any time on one week's notice by its introducer.

Safety Council Active in Baltimore

There is a strong movement on foot in Baltimore at the present time to promote interest among the officials of the manufacturing plants to impress their employees with the necessity of taking every precaution for safety.

This movement is being promoted by the Baltimore Safety Council, working in conjunction with the Merchants and Manufacturers Association of Baltimore.

The Baltimore Gas Appliance & Manufacturing Company have taken up this movement and are the first to hold a safety meeting for their employees on the factory premises.

The Monday Night Club of the Baltimore Gas Appliance & Manufacturing Company is an organization formed among the employees to take up all matters of interest pertaining to the manufacturing of gas ranges.

On Monday night, March 3, they held the first safety council at their plant, consisting of a lecture with moving pictures and lantern slides bearing on this subject.

The company's employment manager, Mr. V. Williams, was the speaker of the evening and outlined in detail the advantages of this movement and the benefits that will be derived direct to the company. Mr. Williams is well versed in this matter, as he has had a very wide experience as safety engineer in general manufacturing industries.

If this movement can be put over generally throughout the country it should materially reduce the liability insurance which the manufacturing corporations are compelled to carry today.

It should be of great interest to other manufacturers to know the plan on which the Baltimore Safety Council is soliciting the interest of the superintendents and foremen of the shops. They are offering a diploma on safety engineering to all of the superintendents and foremen who will attend five consecutive meetings held by the board.

There is always more or less hazard in a factory manufacturing gas ranges, and the Baltimore Gas Appliance & Manufacturing Company, as the manufacturers of the Oriole gas range, have decided that they will leave nothing undone to protect their men from all possible danger.

Plans Extensive Improvements to Take Care of Increased Consumption

The Enterprise Gas Company of Egg Harbor City, N. J., contemplates extensive improvements to its plant in order to take care of increased gas consumption during the coming summer and has awarded the contract to the U. G. I. Contracting Company of Philadelphia, for the installation of all of the apparatus and equipment necessary for the expansion of the plant.

The U. G. I. Contracting Company will prepare all plans and will install carburetted water gas apparatus, blowing plant, high duty condensing equipment, purifiers and boiler plant.

T. R. Harrison to Take Charge of Research Department

Mr. T. R. Harrison has assumed charge of the research department of the Brown Instrument Company, Philadelphia, Pa. Mr. Harrison was formerly associated with the pyrometry department of the Bureau of Standards and more recently with the Champion Porcelain Company of Detroit.

J. S. Rider Resigns

Gadsden, Ala.—The resignation of J. S. Rider, for the past three years manager of the Tri City Gas Company of Gadsden, Ala., and widely known in the Southeast as a gas expert, was announced by the company this month. Mr. Rider's resignation will become effective in April. He states that he has not as yet made any definite future plans.